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BASE AG

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Crosslinkable cholesteric ester or carbonate oligomers - for  
production of cholesteric polymer networks and pigments  
C99-085652

Addl. Data: SCHUMACHER P, KRICHELDORF H R,  
KRAWINKEL T

#### NOVELTY

Cholesteric oligomers are new.

#### DETAILED DESCRIPTION

The cholesteric oligomers are of formula (I):

$(Z_n Y)_q (A Y)_q (B Y)_p Z^2$  (I)

where:

n = 0-1;

q = 0-2;

p = 1-20;

A = a chiral group;

B = a mesogenic group;

Y, Y' and Y'' = CO-O, O-CO or O-CO-O;

the q (AY') units and the p (BY') units can be in any order;

the q A groups can be the same or different and the p B groups can be  
the same or different;

Z' and Z'' = QW;

Q = a bond or an optionally substituted alkylene or arylene spacer;

W = a crosslinkable heterocyclic group.

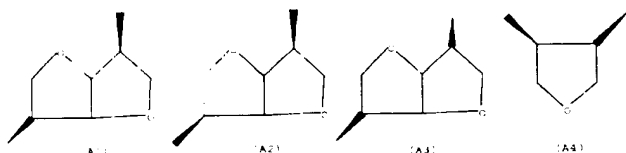
INDEPENDENT CLAIMS are made for cholesteric polymer networks  
obtainable by heating the cholesteric oligomers, preferably at 250-  
300°C, and mono- or multilayer pigments comprising the cholesteric  
oligomers or the cholesteric polymer networks.

#### DEFINITIONS

Preferred Definitions:

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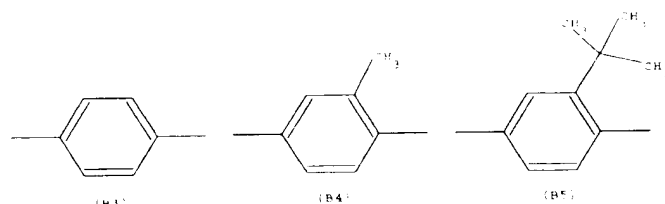
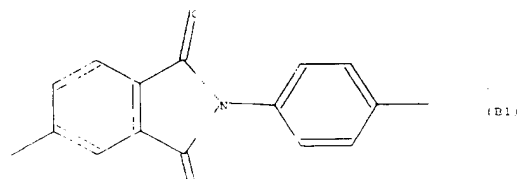
A = groups of formula A<sub>1</sub>-A<sub>4</sub>:



B = groups of formula B<sub>1</sub>-B<sub>5</sub>:

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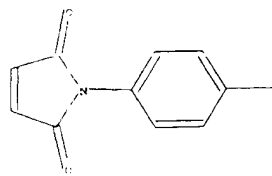
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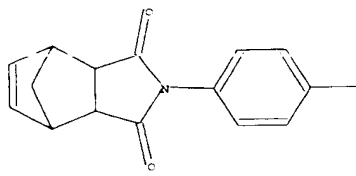
or  $(CH_2)_m$  where m = 4-12



Z [i.e. Z' and Z''] = groups of formula Z' or Z''



(21)



(22)

q = 0, 1-4; p = 2; n = 1.

#### USE

The cholesteric oligomers can be used as coating materials or for producing pigments. The cholesteric polymer networks or pigments can be used in the automobile and automobile accessories sector, in the electronic data processing, leisure, sports and games sectors, as optical components (e.g. polarizers or filters), in the fields of

cosmetics, textiles, leather, jewelry and gifts, in writing utensils or on spectacle frames, in the building and household sectors, in printed products of all kinds, for production of paints and lacquers, for anti-counterfeiting, for coating of utensils, and for lacquering of automobiles.

#### ADVANTAGE

The cholesteric oligomers can be crosslinked in the anisotropic phase, especially thermally, without losing their cholesteric effect.

#### ORGANIC CHEMISTRY

Preferred Preparation: Claimed processes comprise (a) reacting  $\text{B}(\text{COCl})_2$  with  $\text{A}(\text{OH})_2$ , ZOH and optionally  $\text{B}(\text{OH})_2$  in an inert solvent, especially 1-chloronaphthalene, and (b) reacting  $\text{A}(\text{OH})_2$ ,  $\text{B}(\text{OH})_2$  and ZOH with phosgene or especially diphosgene.

#### EXAMPLE

An oligomer was prepared by reacting 40 mmols  $\text{ClCO-B}_1\text{-COCl}$  and 15 mmols  $\text{ClCO-B}_1\text{-COCl}$  ( $m=6$ ) with 10 mmols  $\text{Z}_1\text{-OH}$ , 45 mmols  $\text{HO-B}_2\text{-OH}$  and 5 mmols  $\text{HO-A}_1\text{-OH}$ . (JGT)

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